

LOUISIANA

Conservationist

May-June 1982





Jesse J. Guidry, *Secretary*

comments...

The worth of a thing is known by its want.
Thomas D'Urfey

There are few people in Louisiana who are not boastful of the quality sport fishing they enjoy. There are hundreds of thousands of active sport fishermen. This is revealed in the annual sales of sport fishing licenses.

Additional hundreds of thousands of people in the state want places in the outdoors where they can find wholesome outdoor recreation in hunting and activities other than sport fishing. Many are hikers, campers, birdwatchers, canoeists, and outdoor photographers who make frequent use of this department's wildlife management areas.

All of these users of wildlife and fisheries resources want to see the programs and services provided by the Department of Wildlife and Fisheries expanded.

The people of Louisiana want to see wildlife management activities accelerated. They are pressing for additional acreage to be added to the wildlife management area system. They want more public lands on which they can enjoy their outdoor pursuits.

Our citizens also want continued and ongoing programs to increase and enhance existing wildlife resources that mean so much to them. As good as things are in Louisiana today, the wants of the people have not been satiated. Among the many things they want and expect of the Department of Wildlife and Fisheries is better sport fishing, improved recreational angling.

Louisiana's fisheries resources are a vital part of the state's economy, both from a recreational and commercial standpoint. The department's Fish Division is responsible for studying, managing, protecting and replenishing the fisheries of the state, and controlling undesirable aquatic vegetation that hampers management, navigation and fisherman access in Louisiana waterways.

The division conducts research and management programs and provides technical assistance. Certain projects that deal with sport fish restoration, including research, survey, development, or technical assistance, are funded wholly or partially through the Dingell-Johnson federal aid program.

These D-J funds, generated by excise taxes on fishing tackle and related items, are collected by the U.S. Treasury Department and administered by the U.S. Fish and Wildlife Service. They are prorated back to the individual states based upon a formula predicated upon the sale of fishing licenses and the amount of land area in those respective states.

At the present time, the department has a comprehensive statewide lake management program under which fish populations in lakes throughout the state are sampled each year and pertinent data collected to plan effective management. In 1981, fish populations in 25 lakes were studied.

Also in 1981, 11,581,382 striped bass fry and 3,170,000 hybrid striped bass fingerlings were produced at the department's Toledo Bend facility. A total of 2,183,117 fingerlings were stocked in the Mermentau and Pearl Rivers and in 21 lakes around the state.

Three fish hatcheries, made up of 50 water acres, are operated by the Fish Division. In 1981, some 300,000 largemouth bass finger-

lings, 2,000,000 bream (bluegill and redear) fingerlings, 300,000 striped bass fingerlings, 170,000 hybrid striped bass fingerlings and 10,750 crappie were produced.

Florida largemouth bass fingerlings were released in the Tchefuncte River, Pearl River Locks, and Cross Lake during 1981. Division biologists are studying their survival, growth, food habits, catchability and effect on our native fish populations.

The department also operates a farm pond extension program, with numerous new farm ponds stocked each year. Additionally, older farm ponds that have become out of balance require hatchery raised fingerlings and/or technical advice on the management of fish populations to produce desirable fishing success.

The freshwater fisheries programs that I have dealt with do not represent all of the activities of the Fish Division. There are additional programs. All require proper funding.

Because of the formula for distribution of Dingell-Johnson funds, Louisiana has been deprived of hundreds of thousands of dollars each year. This is due to the present practice of licensing sport fishermen.

There is a bill in the current session of the Louisiana Legislature that would restructure present sport fishing licenses and make the sale of sport fishing licenses in Louisiana more in keeping with the national sport fishing licensing practices. It would result in upwards of a half million dollars in additional D-J funds for Louisiana each year.

This department is supportive of that bill and is seeking grass roots backing from the sportsmen of Louisiana, those people who make continued and frequent use of fish resources.

It would be helpful for our readers to contact their legislators and assure them that they, too, are supportive of a comprehensive fishing license that would help bring in those additional funds for sport fisheries management.

The wants of the people certainly make a comprehensive fishing license worthy. The department needs and seeks your support.



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Front cover by Bernie Feathersen, National Wildlife Federation

Back Cover by Lloyd Poissenot

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The Birthday Bird



1982 is year of the eagle, June 20 is National Bald Eagle Day, and as our national bird celebrates its 200th anniversary as our nation's symbol, Louisiana can be proud to boast of Bald Eagles nesting in our state. Though once plentiful and now an endangered species, Louisiana's Bald Eagle population has stabilized since the declining years a few decades ago.

By Joseph A. Dugoni and Julia Murchison McSherry

Wild and majestic it soars, a wilderness loving bird of striking beauty and fierce independence with size and strength that well represents the nation it symbolizes. Though once bald eagles flew in great numbers from sea to sea, now, throughout most of the

country, the eagle is struggling, not to maintain its honor, but to survive as a species. Due to loss of habitat, the ingestion of deadly pesticides, and human disturbance, it is now endangered or threatened in all the lower forty-eight states.

But the bald eagle is beginning a slow recovery from near extinction and 1982 has been proclaimed the "Year of the Eagle" to remind all Americans of the need to preserve this species and all wildlife for future generations. With this in mind, the National Wildlife

Federation proclaimed the theme of 1982 National Wildlife Week "We Care About Eagles" celebrated March 14-20. Along the same lines, President Ronald Reagan and our United States Congress unanimously proclaimed "National Bald Eagle Day" on June 20, the day 200 years ago on which the Continental Congress adopted our Great Seal with the bald eagle as our national symbol.

And though most Louisianians are more accustomed to seeing the great bird on the seal and on our coins and currency, we can all be proud that our state does in fact still have bald eagles nesting here. It is appropriate that we take a close look at this bird, as our national symbol and as an important native species in the state.

"To catch a glimpse of this majestic raptor is to understand why the founding Fathers chose it to represent the strength and courage of our great Nation," says President Reagan in his proclamation. "Its grace and power in flight, its vigilance and loyalty in defending its family group, and, most of all, its courage make the eagle a proud and appropriate symbol for the United States."

On the Great Seal, one talon of the eagle clutches an olive branch symbolizing desire for peace while the other holds thirteen arrows of defense, representing the original colonies and symbolizing our willingness to fight for freedom. The eagle celebrates its bicentennial birthday as the nation's symbol six years after the nation was founded. That's because it took Congress six years, three committees, and several artists to agree on just the right symbol that would lead our nation through centuries of history.

Since the beginning of recorded history, the eagle has been symbolic of power, freedom, and immortality. Ancient astronomers, gazing at the stars, saw the outline of a soaring bird of prey and named the constellation "Aquila", the Latin name for eagles. In Roman mythology, the symbol for Jupiter, king of the gods, was an eagle clutching thunderbolts in its talons.

Many North American Indian tribes considered the eagle sacred. They used eagle feathers to decorate their ceremonial clothing and as rewards for acts of bravery performed in battle. Pacific Northwest Indians carved the figure of an eagle in their totem poles to repre-



Lloyd Poissenet

sent a spiritual relationship between their families and this majestic predator.

At the time the bald eagle became our national symbol, it nested throughout the country. As the United States expanded from thirteen colonies to fifty states, the population declined. The bald eagle, perhaps more than any other wildlife species, was affected by human expansion. Dwindling habitat was the first major obstacle it faced.

Let us look at interesting facts about the bald eagle itself, nationwide and in Louisiana.

The nation's bird is one of the largest raptors or birds of prey in the world. It is the only eagle species whose distribution is restricted to North America. There are two subspecies, the northern bald eagle and the southern bald eagle most commonly seen in Louisiana and the only species that nests here.

Eagles may live as long as thirty years or more in the wild; in captivity some have been known to live as long as fifty years. The male eagle is smaller than the female. The adult females weighs 10-14 pounds and has a wing span of about eight feet. The adult male weighs 8-12 pounds with a 6½ foot wing span.

The name "bald" is somewhat of a misnomer referring to the eagle's white head. "Haliaeetus leucocephalus", the bald eagle's scientific name, means "white-headed sea eagle."

And if you've ever wondered why we use the term "eagle eyes" describing

a person who "sees" everything, it comes from the fact that bald eagles have eyesight five to six times sharper than a human's. This extraordinarily keen eyesight enables them to spot prey from more than a mile away.

Eagles typically build extraordinarily large nests close to water, in tall trees, out of large sticks lined with moss or grasses. Louisiana bald eagle nests are located for the most part in permanently and annually flooded marsh and cypress swamps of southeast and south central Louisiana. They live in an odd juxtaposition with nearby offshore oil rigs and other industrial sites; one nest is within two miles of New Orleans International Airport. Primary nesting area is the coastal marsh between Lafayette and the Mississippi state line. Many are located in Terrebonne Parish, an area with excellent food availability and potential nesting habitat. Although it is difficult today, eagles attempt to stay as far from civilization as possible. Human activity greatly disrupts their nesting and reproducing activity.

Louisiana nests are most commonly found in tall cypress trees, often as high up as 70-100 feet, and often in the highest tree in the area. From these heights, eagles command a view for miles around so they can keep a wary watch of their marsh where they catch fish, birds and waterfowl, and small animals that make up their diet. Although eagles can catch moving prey such as a running rabbit, they generally prefer easier catches such as sick or wounded waterfowl and carrion (decaying flesh).

Louisiana bald eagles, which generally migrate north for the summer, return to the vicinity of their breeding territory in September or October. A pair will characteristically return to the same nest year after year while nest building instincts are satisfied by repairing and adding to existing nests which become quite large, perhaps six feet deep, three feet across. Even normal sized nests are giant structures but gargantuan nests have been found weighing more than a ton and up to ten feet in diameter and twenty feet deep (not in Louisiana).

The mating ritual is a spectacular rite, observed by few individuals, in which the male dives at the soaring female who rolls on her back with



Lloyd Polsenot

Normal sized eagle nests are giant structures averaging six feet deep and three feet across, made from branches and moss. Louisiana nests are typically found in tall cypress trees.

outstretched talons. The two birds clasp talons, lock together, and spiral downward in "cartwheel display." Nesting activity begins in early fall with mating in early November. The female lays one or two eggs, occasionally three. About thirty-five days later, the nest is filled with one or more eaglets. Generally, the female performs incubation, brooding, and parental care, while the male secures food. The young eaglets stay in the nest for three to four months before they fledge (learn to fly), several weeks more before they can feed themselves, and four to six years before they mature into adult birds with full plumage, all-white head and tail feathers. After the young depart the nest site, they are no longer permitted by parents to use the breeding territory. Each eagle pair, which mate for life, usually return to the same nesting site while the young birds return the following year to build a new nest or take over an abandoned existing one. Nesting eagles are territorially exclusive.

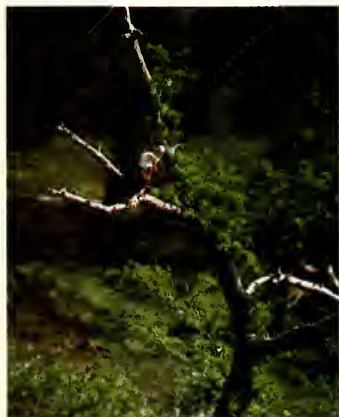
Major nesting areas in the United States are: the 12,000 mile long shoreline of southeastern Alaska with unequaled eagle habitat and thriving populations, the San Juan Islands in Puget Sound off Washington and British Columbia, and Oregon. The Great Lakes states of Minnesota, Wisconsin, and Michigan and Maine, Chesapeake Bay region in Maryland, and Florida also support fairly large eagle populations. At one time, as many as 25,000 lived in what is now the lower forty-eight states with even more in Alaska and Canada. Today, the breeding population in the lower forty-eight is estimated at a little more than 1100 pairs or 3,000 total birds. About fifty of this total number, not all breeding pairs, are counted annually in Louisiana by government agencies, the National Wildlife Federation, and interested individuals.

In a 1977-1980 study conducted through the LSU Cooperative Wildlife Research Unit under the leadership of John D. Newsom, thirty nests thought

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Lloyd Poissenot



A pair of eagles, which mate for life, will migrate north annually and return to Louisiana to the same nest each fall. A successful mating season results in one to three healthy eaglets per adult pair. It takes four to six years for the young birds to mature into full plumage with all-white heads.

to represent a total of about twenty active and inactive territories were located and catalogued. During the study, nest success increased 38 percent which is encouraging. Although Louisiana's number of birds has declined, our state still has more nesting eagles than any other southern state except Florida. However, Florida does have substantially more birds with an estimated 950 nests.

The reasons for the eagle's decline in Louisiana can basically be listed in three categories: dwindling fresh water cypress swamp habitat, use of pesticides and contaminants which adversely affect eagle nesting and reproduction and egg survival rate, and human disturbance. Intruding salt water resulting from man's deposit of spoil from dredging and canal building kills trees and destroys potential nesting sites. The greatest threat to eagles today is the encroachment of man and the slow destruction of the territory where they live and feed.

Drastic decline in bald eagle populations nationwide was first noted in the 1950s and '60s when the use of the pesticide DDT was prevalent. Too late, it was discovered that, among other detrimental affects, the pesticide contaminated fish and animals eaten by the bald eagle and thereby impaired reproduction capabilities. Many eagles stopped producing offspring or lost eggs which broke because of a calcium deficiency linked to DDT. Other birds were affected but the bald eagle, long our national symbol, was one of the most seriously afflicted victims. Louisiana eagles were particularly harmed because of our state's location at the lower end of the Mississippi River Valley which was washed by chemicals drained from manufacturing plants and farmland throughout the United States and carried by the Father of Waters to the Gulf of Mexico.

Today, drainage, channelization, and subsequent exploitation of baldcypress tupelogum marshland due to agricultural conversion and oil, gas, industrial, and residential development continue to threaten our eagle populations. The bald eagle is listed as an endangered species in Louisiana and forty-three other states and is listed as threatened in several others.

Will Louisiana's bald eagle population survive? Right now, the population is stable and perhaps slowly growing says Allan Enslinger, chief of the department's fur and refuge division. The department and the U.S. Department of the Interior, through U.S. Fish and Wildlife Service, are doing their best to protect the birds and to discourage encroaching development near eagle nesting sites. U.S. Fish and Wildlife Service and the Corps of Engineers work with companies in such efforts as altering the course of roadway or power

line projects or discouraging construction near nesting sites during mating and nesting season.

"We cannot stress enough the danger to existing eagle pairs from human intrusion," Enslinger explains. "Individual intruders, as well as construction or industrial projects can be a severe threat to eagles. We strongly urge individuals who know the location of a nest to stay away."

Even five minutes of disturbance can mean changes in reproductive patterns or the loss of a young bird jumping from the nest before it has learned to fly. And remember, killing a bald eagle is prohibited by federal law and is punishable by a stiff fine. Bald eagles are protected by the Bald Eagle Protection Act, the Migratory Bird Treaty Act, and the Endangered Species Act of 1973.

Protection of Louisiana's bald eagles to a large extent lies in the hands of individuals. Citizens must take an interest in the fate of our national symbol by opposing projects that threaten it and reporting to this department or U.S. Fish and Wildlife Service individuals who harm it.

Although the nesting bald eagle population in Louisiana is small compared to what it used to be, with normal clutch sizes, improved egg hatchability and continued high nesting success, it has the potential to increase to unprecedented modern day levels.

Although some existing nests are presently being threatened by some form of development, the department hopes that they can be saved and that new ones will be built in the future. However, it is doubtful that the population will ever return to its former status when it was not an uncommon sight to see our national bird soaring high and courageous across the horizon.

Editor's Note: Jay Dugoni is a professional wildlife biologist and author of "Habitat Utilization, Food Habits, and Productivity of Nesting Southern Bald Eagles in Louisiana," a thesis published in December 1980 through the Louisiana State University School of Forestry and Wildlife Management. The thesis details Dugoni's intensive eagle study conducted from 1977-1980. It contains the most complete and accurate list of existing eagle nests in Louisiana.

Kim Bettinger



Buddy Baker

Cooperative Research

By Judy Hughes

This year marks the 20th anniversary of the Louisiana Cooperative Wildlife Research Unit, a little known but invaluable program that has added immensely to the knowledge of wildlife species in Louisiana. It has trained young men and women for careers in the wildlife profession -- all to the benefit of Louisiana's wildlife resources and hunters and outdoor enthusiasts.

Clad in hipboots, long-sleeved mosquito-proof shirt, mosquito repellent, head light, and with a pocket tape recorder playing nothing but static "white noise," Bill Matthews makes his way through a freshwater marsh in southwest Louisiana in the middle of the night. Why? Well, that's the way to sneak up and catch a nesting common or purple gallinule.

Bill is a student of the Louisiana Cooperative Wildlife Research Unit at Louisiana State University (LSU) in Baton Rouge. He spent two years catching gallinules (poorly understood wading birds of Louisiana marshes and rice fields) to put radio-transmitter backpacks on them so he could study their movements and behavior during the nesting season.

Most people are probably not familiar with the Louisiana Cooperative Wildlife Research Unit (LCWRU or co-op unit)

although it has played a vital role in improving wildlife management in Louisiana. Other co-op units have done the same in other states around the country.

The nationwide cooperative wildlife research unit program began in 1935 when the first unit was established at Iowa State University. A cooperative fishery unit program was added in 1960 and today there are 21 wildlife units, 26 fisheries units (including one at LSU), and 3 combined wildlife and fisheries units at 31 universities in 29 states.

The co-op unit concept was conceived in the early 1930's with the recognition that our country had a decided lack of trained wildlife biologists and yet a great need for scientific data on wildlife species and problems.

As the name implies, the unit program is a cooperative venture. Land grant universities, where the units are located,

A study of mottled duck nesting and brood-rearing conducted through the use of radio telemetry equipment by Buddy Baker (left) and a study of bird life at Rockefeller Wildlife Refuge conducted by Kim Bettinger are examples of important wildlife research at LSU.

provide office and library space, secretarial services, statistical assistance, farm facilities and vehicles. The U.S. Fish and Wildlife Service provides two employees (the co-op unit leader and assistant leader) and a small amount of operating funds. The state wildlife or conservation agency provides a substantial amount of the unit's budget as well as technical assistance, and the Wildlife Management Institute of Washington, D.C. supplies \$1,000 annually to each unit. Funds for many projects also come from various private foundations and industry and government contracts.

The Louisiana Cooperative Wildlife Research Unit was established in 1962, thanks largely to the efforts of the late Dr. Leslie L. Glasgow, then professor of wildlife, and Dr. J. N. Efferson, then Dean of the College of Agriculture, at Louisiana State University. Mr. John D.

Newsom became the LCWRU's first leader in that year and served as such until January 1981 when he accepted his present position as Assistant Secretary, Louisiana Department of Wildlife and Fisheries.

The LCWRU, like all units, has an important dual function. Through it, research is conducted to find answers to a broad spectrum of wildlife resource questions and concerns, ranging from life histories of individual species to how man's developments and habitat alterations affect wildlife. At the same time, the unit educates and trains graduate students as professional wildlife biologists.

There are other universities in Louisiana with wildlife curriculums and where wildlife research is conducted, but the LCWRU is unique in its co-operative make-up and thus has some special advantages.

"Through the unit system, federal, state and private interests work co-operatively to achieve end results beneficial to all, where individually they may not have the resources or personnel to get the work done," explains Dr. Phil Zwank, present leader of the LCWRU.

Phil adds that by using graduate students to do field work and write results of studies, the research can be done cheaply while the students at the same time get an excellent education to prepare for future employment in the wildlife field.

In its 20 years, the LCWRU has graduated 95 students with master's degrees in wildlife management. Of these, all but a very few are now employed in the wildlife field in Louisiana and around the country. Many of them are in prestigious positions including professors of wildlife at universities, biologists and regional supervisors for the U.S.

arch for Wildlife



Robert Helm



Lloyd Mitchell

The purple gallinule (left) and the Mississippi sandhill crane (right) are two of many species studied extensively by the LSU Cooperative Wildlife Research Unit. This sandhill crane is fitted with a plastic neck collar and two colored leg bands, one holding a transmitter, so that its movements can be traced through the use of radio telemetry.



Aerial surveys aid wildlife student John Leslie in determining southwest Louisiana habitat preferences of white-fronted geese popularly known by hunters as specklebellies. Photo below shows (left to right) Leslie conferring with Dr. Robert Chabreck, LSU, and Department of Wildlife and Fisheries pilot Gerald Daigle.

John Leslie



Fish and Wildlife Service and the U.S. Forest Service, and division chiefs and supervisors of other state wildlife agencies. A large number of LCWRU graduates are now working for the Louisiana Department of Wildlife and Fisheries.

Let's look at some of the current work being done through the LCWRU by today's aspiring wildlife biologists.

Buddy Baker is in the middle of a mottled duck nesting and brood-rearing study. Very little work has ever been done on this species even though it is one of Louisiana's few year-round waterfowl residents and a popular game bird.

Buddy has been using telemetry equipment to follow mottled duck hens and ducklings to study their mobility, mortality, and habitat usage during the brood-rearing period. Already, Buddy has learned that mottled duck hens and newly hatched chicks are quite mobile. Two broods he observed in 1981 went over a mile within 12 hours after hatching. One hen took her 9 chicks $2\frac{1}{2}$ miles within 24 hours after hatching — a jaunt that included 3 crossings of the Mermentau River and one of the Grand Chenier highway.

Buddy found predation on mottled duck ducklings was very high during

droughty 1981 — only 8-9% of the ducklings he observed survived. Wetter conditions this year may bring higher survival.

Another popular but little-studied waterfowl species in Louisiana is the white-fronted goose (or specklebelly). Unit student John Leslie is conducting a historical survey of the white-fronted goose in Louisiana over the past 30 years by studying state hunter harvest records, old Fish and Wildlife Service reports, and by talking to hunting club members. He is also determining habitat preferences of white-fronted geese through aerial and ground surveys in

southwest Louisiana.

Through his historical research, John found that 25% of the entire white-fronted goose population migrates into Louisiana and Louisiana hunters harvest 38% of the total national harvest of this species.

The number of white-fronts in Louisiana seems to have increased over the past 20 to 30 years, and John's work will be useful in making management decisions that will keep the population increasing.

Not all the unit studies are on game species. Loyd Mitchell is studying a Mississippi sandhill crane population

on the Mississippi Sandhill Crane National Wildlife Refuge in southern Jackson County, Mississippi. This colony is the only remaining breeding population west of Florida of a bird once found from Louisiana to Georgia and into peninsular Florida.

The Mississippi sandhill crane is an endangered species and Loyd's work is part of a recovery plan initiated in 1976. The plan includes an attempt to bolster the depressed native crane population by releasing pen-reared cranes into the wild. Loyd's task has been to determine the daily and seasonal use of different habitat types by pen-reared cranes released into the wild colony on the refuge. Each of the released cranes was fitted with a plastic neck collar and two colored leg bands, one holding a solar-powered transmitter. Loyd has been able to study the cranes' movements from visual observations and from signals received from the transmitters on the birds' legs. The information he collects will help select suitable sites for future Mississippi sandhill crane releases and will greatly contribute to the understanding of the ecology of this endangered species.

Not all co-op unit research is on birds. Lee Foote is studying the gray fox, a mammal once considered an outlaw species in Louisiana but now protected as a furbearer because of its value to the fashion industry. Like many of the other unit students, Lee uses telemetry equipment to study the fox. He's investigating habitat use, territoriality, seasonal changes in the size and shape of home ranges, and adult-offspring interactions at den sites. Virtually no work had been done on this animal in the past, so Lee is filling another gap in our knowledge of Louisiana wildlife.

Other research in the LCWRU comes about because of specific wildlife problems rather than the need for life history information on an individual species. For example, Paul Shealy is studying a serious problem plaguing the wildlife profession around the country — lead poisoning in waterfowl. Paul collected sick and dead waterfowl from Catahoula Lake and Lacassine National Wildlife Refuge before, during and after the 1980-81 hunting season and per-



John D. Newsom was the first Co-op Unit leader and served in that capacity for eighteen years before becoming assistant secretary, Department of Wildlife and Fisheries, in 1981. He is shown here with a bobcat, one of many species studied through various Co-op Unit projects.

formed necropsies on the birds to determine what percentage of each of the various species he collected contained toxic levels of lead. In light of today's controversy over lead shot versus steel shot, Paul's attempt to document the extent of the lead-poisoning in two problem areas of Louisiana is very timely and relevant.

Only recently have women been entering wildlife curriculums at universities and seeking wildlife professions. The co-op unit program encourages women to participate, but to date, only two of the 95 graduates of the LCWRU have been women. A third, Bonnie Bell, is finishing her analysis and report writing on a study of the seasonal movements and habitat preferences of bobwhite

quail in the piney woods of southeast Louisiana.

Kim Bettinger is the only other woman in the LCWRU at present. She's studying the bird life at the Department of Wildlife and Fisheries' Rockefeller Wildlife Refuge in southwest Louisiana to see what effect canal and impoundment construction and road building has on bird populations and diversity.

The list of research projects of the LCWRU since its beginnings is long. Recently completed studies have provided valuable information on nesting southern bald eagles in Louisiana, the importance of late season nesting of mourning doves, reproductive biology in a Louisiana estuarine heronry, and the ecology of coyotes in Louisiana.



Jim Kurth/Mississippi Sandhill Crane National Wildlife Refuge

Lloyd Mitchell is using radio telemetry to study sandhill cranes. With this equipment, he is picking up signals from a transmitter attached to the birds (see photo p. 9).



Phil Zwank

Wildlife research is sometimes conducted to study a specific problem such as the extent of lead poisoning of waterfowl in certain areas of Louisiana. Here, Paul Shealy examines a bird for evidence of lead poisoning.

Where does all this information lead? It invariably leads to better understanding of wildlife species and problems and can lead to changes in management decisions, hunting seasons and regulations.

For instance, woodcock studies done in past years through the LCWRU provided a better understanding of the woodcock and documented the length of its winter stay in Louisiana. These studies led to the extension of the woodcock hunting season from the end of December to the middle of February.

Long-term breeding studies of white-tailed deer by former unit leader John Newsom and his students led to changes in deer seasons around the state and provided the information on which the Department of Wildlife and Fisheries' new intensive deer management program is founded.

One recent unit student's project led to the development of a scent-post censusing technique now used by Wildlife and Fisheries biologists around the state to evaluate bobcat, fox, coyote and other animal populations.

The graduate students of the LCWRU spend a great deal of time and effort studying wildlife species, most of which are secretive, elusive and wary of human intrusion. Hours are spent out in the field to collect data, regardless of scorching summer temperatures and sticky humidity or winter drizzle and cold. Often days or weeks are spent away from home — quite a sacrifice for many of the students with families. But this is often the only way valuable information on wildlife species can be obtained.

Unfortunately, because of budget cuts by our federal government, the nationwide co-op unit program is being threatened. Various alternative plans are being considered, but if sufficient funds are not approved for the program, many units around the country may have to be eliminated.

Fortunately though, the Louisiana Cooperative Wildlife Research Unit is not on the endangered list. It is considered to have one of the strongest programs of all the wildlife units and will not be eliminated in any of the alternative plans.

Louisianians can be proud of the Louisiana Cooperative Wildlife Research Unit, for it has played and will continue to play a major role in allowing Louisianians to enjoy the abundant wildlife resources of our state.

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Undercover Stings

By McFadden Duffy
Photography by Lloyd Poissenot

Illegal sellers of game and game fish are feeling the sting of undercover operations by the department's enforcement division. Several major cases have already been made, and others are being worked in many parts of the state.

Author's Note: In illustrating this article on undercover operations by the Enforcement Division, it was necessary to carefully screen Lloyd Poissenot's photographs of the raids. Those action shots in which undercover agents appeared had to be destroyed to protect them. They remain nameless and faceless except to the persons who felt the sting that came from flaunting the law.

The flow of traffic on U.S. Hwy. 65-84 between Ferriday and Vidalia, La., was normal December 10. An occasional customer entered or left Brown's Quality Meat Market on that highway. There was every appearance of an ordinary day.

Suddenly, vehicles containing undercover and uniformed wildlife enforcement agents converged on the rural store. The group included a compliance investigator for the state Department of Agriculture and undercover agents of the U.S. Fish and Wildlife Service.

Moving quickly into the store, the agents seized 226 packages weighing more than 1,161 pounds which were alleged to contain deer meat.

Arrested on six counts each of selling deer were Joe W. Brown and Luther A. Sloan, Jr., of Vidalia. Ray Waites, investigator for the Meat and Poultry Division of the state Department of Agriculture, said at the time he would also file charges of possession of an adulterated product.

At the same time Brown's Quality Meat Market was being raided, other members of the undercover team, uniformed agents, and undercover agents of the U.S. Fish and Wildlife Service



As a result of recent undercover operations, state wildlife agents have confiscated hundreds of packages of illegal deer meat and game fish weighing thousands of pounds as well as some illegal squirrel, raccoon, and other game.



were executing search and arrest warrants on four members of the commercial fishing Willis family at their waterfront residence at Deer Park, approximately 15 miles south of Vidalia. Some 690 pounds of game fish, mostly sac-a-lait, were confiscated.

Arrested were Tommy Joe Willis, his wife Nettie Elaine, Billy Don Willis, and his wife Billie Joe. Nettie Elaine Willis was charged with two counts and the others with three counts each of selling game fish.

Judge R. P. Boyd, Jr., of the Seventh Judicial District Court in Harrisonburg, La., set bond at \$2,500 each.

Undercover agents of the Department of Wildlife and Fisheries had bought deer meat from Brown and Sloan five times and game fish from the Willises twice before final purchases immediately preceded the raids and arrests that December day.

Col. Ray Montet, chief of the Enforcement Division, and Lt. Col. Winton Vidrine, assistant chief, accompanied the agents in both cases.

The head of the department's undercover team said he bought what appeared to be hamburger meat from Brown's market last June but laboratory analysis revealed it to be a mixture of beef and deer.

A small amount of the meat and game fish confiscated that day was kept for evidence, but most of the seized meat and fish was rushed to the Masonic Children's Lodge in Alexandria, La.

At that time, Col. Montet said "This is just a small part of the operation we're working on. We know the public wants commercial game law violators stopped, and we are going to stop them. All of our agents are enthusiastic about that.

"To do it completely, we need the help of citizens. We'll be grateful for any information they can give us through our toll-free line (1-800-442-2511), or they can contact any agent."

The department's undercover agents are working on scores of other cases involving the illegal sale of game and game fish. Some of them aren't as big as the one involving Brown's Quality Meat Market and the Willis family. Some are even bigger. All are important in the statewide drive against this enormous drain on wildlife and fisheries resources.

A few days after the raids in Con-

cordia Parish, the department announced that Jerry W. Hutzler, Sr., of Morganza, La., had been fined \$600 plus \$50 costs of court and was then serving 60 days in jail for selling deer meat.

Hutzler had been arrested January 8, 1981, for selling approximately 80 pounds of venison to undercover agents. Prior to his arrest, Hutzler had sold 20 pounds of deer meat and two deer to undercover agents on prior occasions.

Hutzler was tried before Judge Edward N. Engolio, Division C of the Eighteenth Judicial Court in Plaquemine, with Assistant District Attorney Joseph Cole of Port Allen handling the case for the state.

He appealed his case and that was why he did not begin serving time until late in the year, after he lost his appeal.

A few weeks later, this writer and Lloyd Poissenot, department photographer, kept an early morning rendezvous with Lt. Col. Vidrine and Major Inspector Vincent Darby, head of the undercover operations. We met at a motel west of Baton Rouge and quickly departed for a pre-arranged meeting

place on U.S. Hwy. 190 where both undercover and uniformed wildlife agents waited. The raiding party also included federal undercover agents and compliance officers Archie Seals and Bill Hilton of the meat inspection division of the state Department of Agriculture.

The final rallying point was a small country church in Erwinville, La. While the various agents waited in six vehicles, undercover agents went to Decuir's Slaughter House to make additional purchases of deer meat before signaling the rest of the party.

They purchased 66 pounds of deer and pork sausage at \$2 a pound and two deer roasts weighing five pounds each from Horace Collins, Jr., of Port Allen, La. With the purchase made and the money exchanged, they radioed the waiting team.

Within two minutes, the slaughter house was surrounded and Collins had been served with warrants and arrested. A short time later when Clyde Decuir of Erwinville arrived, he was also arrested.

The agents confiscated 158 packages containing more than 400 pounds of deer meat, or sausage made from deer and pork, taken from Decuir's cooler and freezer in his house next door.

Decuir was charged with three counts of selling deer meat and Collins with two counts.

The confiscated meat was donated to the Boys Sanctuary, Inc., in Eunice, La.

Arrested later in the day at a grocery and market in Port Allen and charged with one count each of selling deer meat were Gussie Decuir, Wanda Decuir, Russell Decuir, and Brenda Shields.

The slaughter house raid was part of a team effort that morning. While the raid at Decuir's was taking place, other agents arrested Clayton Rudy Daley and Robert Lee Daley, both of Plaquemine, La. Clayton Daley was charged with one count of selling squirrel, and Robert Daley was charged with one count of selling deer meat.

They were booked that day in Iberville Parish where bond was set at \$10,000 each by Judge Edward N.



Department agents turned over confiscated game and fish to charitable institutions such as the Humanitarian Enterprises in Lincoln Parish.

Engolio, Sr., of the Eighteenth Judicial District Court.

Another team of agents simultaneously arrested William Callaway of Maringouin, La., at his place of employment in Baton Rouge. He was charged with two counts of selling deer, two counts of selling raccoon in closed season, and one count of selling squirrel.

Collins and Clyde Decuir, along with Callaway were booked in Pointe Coupee Parish where Judge Daniel P. Kimball of the Eighteenth Judicial Court set bonds of \$3,000 for each count of selling deer, \$3,000 for each count of selling squirrel, and \$2,000 for each count of selling raccoon.

Gussie Decuir, Wanda Decuir, Russell Decuir and Brenda Shields were booked in West Baton Rouge Parish where Judge Edward N. Engolio, Sr., set bonds of \$3,000 for each count of selling deer, \$3,000 for each count of selling squirrel, and \$2,000 for each count of selling raccoon.

On Thursday, February 11, Lloyd Poissenot, Mike Cook, outdoor editor of the Baton Rouge Morning Advocate and State-Times who had participated in two earlier raids, and this writer met at dawn in Ville Platte, La., with Cols. Montet and Vidrine. After coffee at a 24-hour store, we drove to the outskirts of Mamou, La., where we met the undercover agents, uniformed agents, and a federal undercover agent who would accompany those making the raid in the event migratory waterfowl were found.

While we were gathering at Mamou, armed with two search and arrest warrants, other teams had fanned out with nine additional arrest warrants.

Target of the raid in Mamou was Guillory's Superette, from which Murphy "Chuck" Guillory and his wife allegedly had sold game to department undercover agents in August, October, November and December of last year.

When an undercover agent who had the superette under surveillance radioed that the Guillory's had arrived at the store, the raiding party moved quickly into Mamou and surrounded the store.

While the Guillory's were being arrested and their rights read to them, uniformed agents searched the premises and the coolers and freezers. Only a small amount of game was confiscated.

A passerby told one of the undercover agents that the wildlife raiding party should have come a few months before.



Alleged violators arrested during a recent raid are shown being booked. St. Joseph Children's Home in Baton Rouge (far right) received some of the confiscated game and fish.

"The place was full of game," he said.

The agent smiled and replied, "I was here a few months ago. In fact several times. I bought game each time. That's why we're here today with warrants."

Evangeline Parish Sheriff Ramson Vidrine identified Guillory as a member of the Mamou City Council, commissioner of police for the community, and a bail bondsman.

His bond was set at \$5,000 by Judge Joseph Emile Coreil of the Thirteenth Judicial District Court. Mrs. Guillory was booked on one count of selling rabbit and one count of selling squirrel. She was released on \$3,000 bond.

In one of the separate cases, a bond of \$5,000 was set for Larry King of Turkey Creek, La., after he was booked on four counts of selling squirrel, one count of selling wild turkey, and one count of selling rabbit.

Three other Turkey Creek residents were among those booked that morning: Carrol King, one count of selling 15 squirrel; Raoul Guillory, one count of selling 13 squirrel; and Richard Hazelton, one count of selling 10 squirrel. Bonds were set at \$3,000 for King; \$2,700 for Guillory, and \$2,000 for Hazelton.

Two Ville Platte residents were also booked. Bond for James Myles was set at \$3,000 on one count of selling rabbit, and at \$1,500 for Eddie Myles on one count of selling rabbit.

One Evangeline Parish juvenile was turned over to juvenile officers.

On the same day as the arrests in Evangeline Parish, other wildlife agents were arresting Doc Lucas and Judy Forsythe, both of Matthews, La., in West Baton Rouge Parish. They were both charged with one count of selling deer meat.

The arrests in Concordia, Iberville, Pointe Coupee, West Baton Rouge and Evangeline Parishes were quickly followed by additional arrests in Vernon and Rapides Parishes.

Richard Leo Shaw, Buddy Phillips, and an unidentified juvenile, all of Leesville, La., were arrested for selling game to undercover agents of the department.

Shaw was charged with taking deer in closed season, taking deer in an illegal manner (fine shot), selling deer meat, and selling squirrel. Bond was set at \$1,000 on each of the four counts.

Buddy Phillips was charged with one count of selling squirrel and bond was set at \$1,000.

The juvenile was charged with six counts of selling squirrel and rabbit, and was also charged with taking rabbit at night. Bond was set \$1,000 for each count.

Robert K. Phillips was charged with one count of selling squirrel and bond was set at \$1,000.

In Rapides Parish, Charles D. Dow of Dry Prong, La., was arrested and charged on two counts of selling game fish to an undercover agent. Bond was



set at \$5,000.

Mattie R. Moore of Glenmora, La., was charged with one count of selling squirrel and one count of selling deer meat. She was ordered to post bond in Alexandria within five days after being served with arrest papers.

On the morning of March 11, wildlife agents from Natchitoches, Jackson, Winn, Red River, Webster, Bienville, Lincoln and Union parishes, led by Major Inspector Darby who was accompanied by Lt. Col. Vidrine and undercover agents, fanned out and simultaneously arrested 14 persons on various charges of selling game and game fish.

One of the targets for the raid was Upshaw's Fish Market in Ruston, La., where 124 raccoon, 34 opossum, and a squirrel were confiscated. Undercover agents had purchased 64 squirrel, 25 rabbit, and two raccoon in four earlier visits to the store.

Arrested were: Vick R. Upshaw, operator of Upshaw's Fish Market. He was charged with two counts of selling squirrel, selling raccoon out of season, and selling rabbit. Bond on the four counts was set at \$3,000.

Melba King of Ruston, an employee of Upshaw's Fish Market was arrested and charged with four counts of selling rabbit and squirrel, and one count of selling raccoon out of season. Bond was set at \$3,750.

Jerry Smith of Ruston was also arrested on one count each of selling raccoon and game fish. Bond was posted in the amount of \$1,500.

Ed Smith of Choudrant, La., who was in the hospital at the time of the mass arrests, was not arrested but was served with warrants on one count each of selling raccoon out of season and selling game fish. He posted a \$1,500 bond.

In Webster Parish, Tommy Baker of Shongaloo, La., was arrested on one count each of selling squirrel and selling raccoon out of season. He posted \$1,000 in bond.

Thomas W. Tally, also of Shongaloo, La., was arrested on one count of selling squirrel to an undercover agent. Bond was set at \$500.

Also in Webster Parish, Flavel "Mutt" Thomas of Sarepta, La., was arrested on two counts of selling deer, one count of selling rabbit and one count of selling squirrel. Bond was set at \$2,000.

In Bienville Parish, wildlife agents arrested William D. Humble, Jr., of Bienville, La., who was charged with one count of selling rabbit, two counts of selling raccoon out of season, and one count of selling deer. Bond was set at \$3,000.

In Natchitoches Parish, wildlife agents arrested Ernest Brown of Goldonna, La., who was charged with one count each of selling squirrel, selling two deer, and selling game fish.

Arthur Brown, also of Goldonna, was arrested and charged with five counts of selling squirrel, one count of selling undersize catfish, and one count of selling 44 pounds of game fish.

Wildlife agents in Jackson Parish arrested Freddie Wayne Davis and Rickey

Davis of Jonesboro, La. Both were charged with one count each of selling squirrel.

In Red River Parish, Donald Upshaw of Coushatta, La., was arrested and charged with one count of selling game fish.

In Avoyelles Parish, Sam Bordelon of Pineville, La., was arrested and charged with two counts of selling squirrel, and one count each of selling rabbit, deer meat, and game fish.

Mrs. Viola Bordelon, also of Pineville, was charged with one count each of selling squirrel and rabbit.

In still another case, Lawrence Lachney of Ville Platte, La., pleaded guilty to selling deer meat to an undercover agent and was fined \$750 plus costs of court, and placed on two years of supervised probation.

Judge H. Ward Fontenot of the Thirty-Eighth Judicial District Court sentenced Lachney to 60 days in jail but suspended that part of the sentence.

Jerry G. Jones, district attorney for Cameron Parish, handled the case for the state.

There are other arrests pending and the work of the undercover agents goes on. They are buying game and game fish in all parts of the state.

Many of the techniques used by the undercover agents must remain guarded secrets. It must suffice to say that they give the outward appearance of persons you see every day, the sort you get acquainted with over a period of time. You might strike up a conversation with an operative in the local hardware, next to you at the counter in a hamburger stand, or buying a pack of cigarettes. They are nameless and faceless, but they're out there.

These undercover operations are a part of the general upgrading of the Enforcement Division that has been taking place during the past two years and particularly during the past 16 months. Restructuring of the division, with the full support of Secretary Guidry and the Louisiana Wildlife and Fisheries Commission, is producing results that have gained the respect of sportsmen, the courts, and people in all walks of life.

What is being done today in enforcement of wildlife and fisheries laws has also resulted in public support for the department and created a better public image of the entire department and especially its Enforcement Division.



Yellow-fever Mosquito (*Aedes aegypti*)

Photo courtesy New Orleans Mosquito Control

Summer's Here ...So Are Mosquitoes

By Judy Hughes

"Don't forget the bug spray" is probably the most common phrase heard before any hunting, fishing, hiking or picnicking venture in Louisiana. Forget it, and you may as well forget the trip . . . or else come home lumpy, itchy, swollen and exasperated.

The word "mosquito" may be Spanish for "little fly," but in Louisiana it means "the most annoying creature on the face of the earth."

But mosquitoes are not just annoying. They carry several of man's most dreaded diseases, including malaria, yellow fever, dengue and encephalitis. Worldwide, mosquitoes have caused more suffering than any other insect or animal and killed more people than have died in all wars combined.

Unfortunately, millions of people throughout much of the world still suffer and die from mosquito-transmitted diseases every year. In this country, malaria, yellow fever and dengue have been essentially eradicated, but occa-

tional outbreaks of encephalitis still occur in horses and humans. Dog heartworm, a disease also transmitted by mosquitoes, is a serious problem in many parts of the United States. In southern Louisiana, infection is as high as 80% of dogs over two and a half and nearly 100% of dogs over five years old. It can be severely debilitating or fatal.

While we no longer have as great a fear of mosquito-transmitted diseases in this country, our lives are still affected by mosquitoes. Economic losses occur because of reduced labor efficiency of outdoor workers, reduced livestock and poultry production, reduced tourism, and reduced land values in mosquito-infested areas. Annoying mosquitoes can take all the joy out of hunting, fishing, camping, barbecuing, and the multitude of other outdoor activities Louisianians so love.

There are some 3,000 species of mosquitoes in the world. There are 160 species of mosquitoes in North America and 57 species in Louisiana.

The mosquito species in our state range in body size from a minute 16th

of an inch to an easily-seen half an inch; some live and breed in salt water areas, some in fresh water; some predominate in coastal Louisiana, some in the northern part of the state; some prefer to bite humans, others prefer birds or frogs; some lay their eggs on moist soil, some on the water's surface, some on objects like tin cans or old tires; one species is an authentic winter mosquito and is rarely seen in summer.

At least two things are the same for all mosquitoes: their eggs must be submerged in water for them to hatch and they have four distinct life stages.

The first life stage of the mosquito is the egg. It hatches in one or two days into a larva (wormlike without legs or wings) which lives in the water where it feeds on microscopic plants and animals. The larva sheds its skin four times, growing larger each time, before it transforms into a pupa. The pupa doesn't feed, but stays quietly at the water's surface while the wings, legs and other organs of the adult are taking shape within the pupal skin. When the mosquito is fully formed, the pupal skin splits and the mature adult emerges at the water's surface. All this takes place in one to two weeks depending on the species and the weather.

Mating between male and female mosquitoes usually occurs in the air shortly after the adults have emerged. They then take off in search of food.

Only the female bites. Both sexes feed on various juices of fruits and flowers, but the females of many species also take meals of blood from vertebrate animals. The mouth parts of both sexes are greatly elongated, but only those of the female are designed for piercing skin to suck blood.

The female doesn't bite out of mere aggression, she needs the blood for her developing eggs. When biting, she takes up to five milligrams of blood—several times her own weight and enough to nourish 75-500 eggs.

As a female mosquito bites, she injects her saliva into the wound because it contains a blood-thinner that allows her to take blood freely. It is this saliva that most people are allergic to and that results in the swollen and itchy mosquito bite.

Why is it one person can get bit from head to toe while the guy right next to him doesn't get one bite? Unfortunately

the answer is not simple. You first have to consider what attracts female mosquitoes to prospective hosts. It can't be visual recognition alone, or we'd all be bitten equally.

Entomologists (those who study insects) have found mosquitoes are initially stimulated to fly by carbon dioxide (CO₂). Humans and other animals emit CO₂ as they breathe as well as through the skin. Once stimulated by CO₂, mosquitoes apparently zero-in on warm, moist air currents given off by warm-blooded animals. If a mosquito moves out of the current, it turns, and the turn usually puts the mosquito back in the current and on its course to the host.

People differ in the amounts of CO₂, heat and moisture they give off, and thus, some people attract mosquitoes more readily than others. Other factors may also be involved, such as color of clothing, perfumes and deodorants, body odors and chemical components of the skin. So, it's nearly impossible to tell exactly what makes mosquitoes more, or less, attracted to any one individual.

The mosquito that causes the most problems in the coastal region and is the greatest pest to outdoorsmen in south Louisiana is the salt marsh mosquito (*Aedes sollicitans*). This mosquito is particularly pesty for four reasons. First, it lays its eggs on the ground, at the edges of salt and brackish marshes. These eggs can accumulate during droughty periods and remain viable for months. Then after being flooded by heavy rains or high tides, they can all hatch within about 30 minutes . . . and all be adults in 7-10 days, ready to migrate in large swarms in search of blood meals.

Second, the salt marsh mosquito has a long flight range. It can fly up to 25 miles from its hatch site under its own power, or up to 70 miles with help from the wind. So, they can easily migrate from an unpopulated hatch site to a populated area in order to feed.

Third, the females of this species are fierce, persistent biters and will attack anytime of day or night. Most other species of mosquitoes only bite during a part of the day, usually at dawn and dusk.

Photo courtesy New Orleans Mosquito Control



When biting, the female mosquito takes up to five milligrams of blood, several times her own weight, to nourish her developing 75-500 eggs. The saliva she injects into the wound acts as a bloodthinner allowing her to take blood freely and resulting in the swollen and itchy mosquito bite on the unlucky victim.

Fourth and finally, the salt marsh mosquito has a long life span, 6-8 weeks (that's long for a mosquito). That gives them a longer time to be a nuisance and lay more eggs.

While the salt marsh mosquito plagues the coastal region, the dark rice field mosquito (*Psorophora columbiae*) is a common pest in the rest of Louisiana. The dark rice field mosquito is produced in vast numbers in irrigated rice fields and associated pastures. The females of this species are also fierce biters and attack anytime day or night.

Two mosquito species have adapted well to human environments, the common house mosquito (*Culex quinquefasciatus*) and the yellow fever mosquito (*Aedes aegypti*).

The house mosquito breeds close to human dwellings and commonly enters houses at night in search of blood meals. It breeds in foul water in ditches, gutters and artificial containers in junk yards and around houses. This is the mosquito that carries dog heartworm.

The yellow fever mosquito also breeds in artificial containers such as discarded tin cans and old tires that hold rain water. This is the most troublesome mosquito in the New Orleans area because it breeds right in people's backyards. It is the potential carrier of yellow fever and dengue should either disease be brought in from outside the country.

Mosquitoes may be bad this year, but we should be glad they're not what they were a few decades ago. In the late 1950's and early '60's, mosquitoes reached such horrendous numbers in Louisiana that people refused to work outdoors and no one was able to enjoy outdoor leisure activities without the nuisance of mosquitoes.

That's when organized mosquito control efforts began. In 1958, Louisianians ratified a constitutional amendment that authorized the police juries or other parish governing bodies to set up tax-supported mosquito control districts in their respective parishes, subject to the approval of the taxpayers of the parish.

A mosquito control program was initiated in Plaquemines Parish in May, 1964 and in Orleans Parish in June, 1964. Since then, eight other parishes in south Louisiana have followed suit: Calcasieu, Cameron, Jefferson Davis,



Treat Davidson Courtesy Louisiana Nature Center



Treat Davidson Courtesy Louisiana Nature Center



Life for the mosquito begins with an egg which hatches in one or two days into a larva (top photo) that eventually sheds its skin four times, growing larger each time, before it transforms into a pupa (middle photo). The pupa stays quietly at the water's surface until wings, legs and other organs take shape and the pupal skin splits so that the mature adult mosquito emerges (bottom photo).

East Baton Rouge, St. Tammany, Jefferson, Vermilion, and St. Bernard. Ouachita Parish is the only mosquito control district in the northern part of the state.

Basically, publicly-organized mosquito control can be separated into two categories, permanent and temporary. Permanent control is designed to alter the environment so as to eliminate mosquito breeding sites, where as temporary control involves the actual killing of larval and adult mosquitoes with chemical insecticides or other means.

Since many of the troublesome mosquitoes lay their eggs on moist ground which must then be flooded for the eggs to hatch, potential breeding sites can be eliminated by keeping these areas permanently flooded or drained.

Drainage can be improved on an area through the common practice of ditching. Mosquito control ditches are typically shallow and narrow and are constructed so they connect to existing natural waterways or to larger ditches that empty into a major body of water. They serve to prevent water from remaining on an area long enough for mosquito eggs to hatch and develop into adults.

In other mosquito control efforts, impoundments are created so that water levels can be controlled to prevent mosquitoes from laying eggs in the area.

One of the most familiar forms of organized mosquito control is the spraying of insecticides from trucks and planes. This chemical control of mosquitoes has advantages and disadvantages. It is an effective way of eliminating large numbers of mosquitoes in infested areas. It's the only way to rapidly eliminate disease-carrying mosquitoes when necessary to prevent epidemics. But, chemical control is temporary; it must be repeated frequently in problem areas. Insecticides can be expensive and toxic pesticides present a potential hazard to man, other animals, and the environment.

Chlorinated hydrocarbon insecticides (including DDT) formerly were widely used in the United States for mosquito control. During 35 years of its use, DDT made possible tremendous strides in controlling or eliminating malaria in vast areas of the world. It is still used in some countries, but evidence that it

persists in the environment and harms other forms of life, led to its being banned in the United States.

Mosquito control workers in Louisiana today use organophosphorus compounds, which break down more readily in the environment than chlorinated hydrocarbons. These compounds, primarily malathion and dibrom, are used for ground and aerial spraying in cities and rural communities and in some agricultural areas.

Because organophosphorus insecticides can not be used in some areas, like wetlands, and because there is concern over possible harm to man and other animals from these compounds, researchers are constantly looking for better, safer mosquito control techniques.

One naturally occurring substance, said to be the world's safest and most effective insecticide, is pyrethrum, found in many plants of the chrysanthemum family. Extracting pyrethrum from its natural sources is generally expensive, but cheaper synthetic pyrethroids have been created and are available for use by individuals and mosquito control workers.

Another form of mosquito control uses non-toxic, hormonal substances called insect growth regulators (IGRs). These upset the normal growth patterns of mosquito larvae so they never develop into adults. IGRs are effective but their use is limited since they can also affect other creatures such as crawfish.

Various biological control methods are popular because they use natural enemies such as predators and parasites to reduce mosquito numbers. Certain small fish, including guppies and the mosquito fish or top minnow (*Gambusia affinis*), prey on mosquito larvae and pupae. These fish make excellent predators of mosquitoes in fairly permanent water and have been used extensively in rice fields and backyard ponds.

Scientists are working with bacteria, viruses, fungi and protozoans that may eventually add to our arsenal against mosquitoes. Already in use in Louisiana is a bacteria called BTI that kills mosquito larvae.

New Orleans mosquito control workers are experimenting with an introduced cannibalistic mosquito whose larvae eat the larvae of some of our native,

troublesome mosquitoes. As adults, these mosquitoes feed exclusively on plant juices, they don't bite people or other animals.

Mosquito control has developed into a highly sophisticated science. Each of the mosquito control districts in Louisiana is directed by professional entomologists and mosquito control experts. Of the many forms of mosquito control, some only work in certain situations, and some only for certain species of mosquitoes. The ultimate goal of mosquito control is to integrate as many techniques as possible and use them properly so as to reduce mosquito numbers but not harm other forms of life.

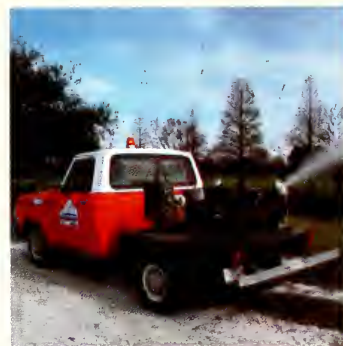
Wouldn't it be nice if we could rid the world of all biting mosquitoes? We might think so at first, but many entomologists feel the mosquito is important to the over-all food chain of life on earth. While no one animal depends entirely on a diet of mosquitoes, many aquatic insects, dragonflies, wasps, predacious flies, fish, birds and bats feed on mosquito larvae and adults. Other animals in turn, eat these predators. Every creature on earth seems to have a purpose — even the mosquito. But that doesn't mean we can't work to keep the population down, especially when we're out trying to enjoy the summer.

While entomologists and insecticide manufacturers are busy developing new and better mosquito control techniques, every hunter, fisherman, hiker and picnicker is busy trying to decide which mosquito repellent works best. Actually, most of the marketed insect repellents for personal use contain the same active ingredient, called N, N-diethyl-meta-toluamide (deet). They differ in how much deet they contain and in the amounts and types of other ingredients. A repellent with 33% deet may be more effective than one with only 14%, but then again, it probably depends on the individual using it.

Experts say mosquitoes may indeed be bad this year in Louisiana. The mosquitoes won't be any bigger or bite any harder than usual, but because we had a fairly mild winter and warm temperatures early in the year, the mosquito season will be longer. And, a longer season means more females will be able to lay more eggs. So, be prepared . . . don't forget the bug spray.



Photo courtesy New Orleans Mosquito Control



Lloyd Poissenot



Photo courtesy New Orleans Mosquito Control

In the late 1950's, mosquitoes reached such horrendous numbers that organized control efforts began. Today, mosquito control is a sophisticated science that involves aerial and truck spraying of chemicals as well as laboratory research.

Flying for Wildlife

By Julia Murchison McSherry



The use of airplanes plays an important and often overlooked role in the enforcement of our game and fish laws, in research, and in the management of our wildlife and fisheries resources.

Six million oysters rode aboard pilot Steve Littleton's Cessna 185 seaplane from Barataria Bay in southeast Louisiana to Sister lake nearly a hundred miles by water to the west. Being in the larval stage, they fit compactly in a five gallon jug and upon arrival at their destination from the department's marine laboratory research facility where they were raised, they were used to stock a shell plant. They arrived in one hour, a critical factor in ensuring their survival during the stressful period of transport.

Meanwhile, a special antenna attached to a Cessna 210 piloted by Leo Rodriguez tracks the movements of an alligator from nest to feeding range and back again. A biologist riding in the passenger seat records exact details on location indicated by periodic beeps emitted from a small transmitter attached to the gator months earlier. Data compiled from regular weekly tracking of numerous gators through the use of radio telemetry is important in scientific research conducted to manage gator populations and regulate harvest of surplus animals. Without the use of aircraft, movements of such animals with a wide home range could never be traced satisfactorily.

Pilot Gerald Daigle has seen more waterfowl from the cockpit of the department's Cessna 210 than any duck hunter dreams of seeing on opening day. During the fall waterfowl migration months, he flies waterfowl inventories about five hours a day, three days a week. Two waterfowl biologists accompanying him record the number and kind of ducks estimated within 200 yards on both sides of the air-

Photography by Lloyd Poissenot



Leo Rodriguez, department pilot for seventeen years, is vice president of the International Association of Natural Resource Pilots.

craft. In a north/south flight direction, they transect or strip count waterfowl across 5,000,000 acres of marshes, ricelands, and pastures. Information gathered by pilot and biologists provides the Wildlife and Fisheries Commission with valuable data on species, composition, size, and distribution, all important considerations in selecting dates for the annual waterfowl hunting seasons. The popular September

teal season and bonus scaup regulation are two examples of benefits hunters have received as a direct result of information obtained from aerial surveys.

Yes, the airplane is an essential tool in the management of our wildlife and fisheries resources. Without them, certain services simply could not be performed. Uses of aircraft in natural resource management are varied.

Enforcement patrol, especially along Louisiana's vast coastal marshes, relies heavily on the use of aircraft. From the air, a pilot can see for miles and radio direct wildlife agents in nearby boats below to the scene of illegal oyster and shrimp fishing or illegal commercial netting. Several weeks before the spring and fall shrimp seasons open, regular aerial patrols are intensified to curtail activities of shrimpers too eager to wait for opening day.

"Airplanes in our state, with such vast coastal marsh, are like company automobiles," says department pilot Littleton. "They are not a luxury but a necessity for getting the job done." Planes allow agents to patrol larger, sometimes otherwise inaccessible, areas and to travel much faster than by boat.

Telemetry work, such as with the gator as mentioned earlier, is a modern important scientific tool, made possible in Louisiana's coastal region through aircraft. Telemetry is used statewide with many other species such as otter, bobcat, turkey, bear, and deer.

Fisheries work is often enhanced by the use of aircraft. Tagging operations, surveying aquatic weed problems, and

Aerial surveys are essential to proper marsh management (*below*). Department pilot Steve Littleton (*right*) checks plane before take-off (*below right*). Proper maintenance of aircraft is critical to safety.



the transport of fish from one area to another for stocking purposes are three primary examples. Hundreds of thousands of striped bass fry are artificially spawned each spring at the department's Toledo Bend laboratory and Rockefeller Refuge and transported to hatcheries around the state where they are grown to fingerling size before release in lakes and waterways. Fast transport, via air, is the quickest and safest way to ensure survival of the young fish.

Time and the need for fast transportation was also critical to the survival of Malaysian prawns, freshwater shrimp, brought in to experimental ponds at Rockefeller Wildlife Refuge in southwest Louisiana from southern

Florida near the Everglades.

The same is true of turkeys brought in from out of state as part of the department's successful stocking program. Pheasants, a non-native species, have also come in by air in an effort to establish a pheasant population in Louisiana.

Routine aerial habitat surveillances to check timber composition and evaluate habitat play an important role in the department's game management and land acquisition program.

Marsh surveillance at Rockefeller Refuge is necessary in research, proposed projects, in checking the progress of contract jobs such as canal dredging or roadwork, and in making quick evaluations of mineral expansion activities. In fact, the department developed much of its water shed programs on Marsh Island, State, and Rockefeller Wildlife Refuges in the early era from use of aircraft. Use of airplanes gave technicians planning the programs an otherwise unavailable opportunity to make comprehensive evaluations of ecosystems and management decisions for installation of water control structures and water levels.

During the same era, in the 1960's, quick sampling of postlarval and juvenile shrimp migrations at designated spots along the coast was made possible by seaplanes towing plankton nets and small six-foot trawls. This practice enabled the department to sample several remote stations in one day, whereas two or three days would have been required to do the work by boat.

Today, aerial photography is an important tool that allows technicians to study complete pictures of particular areas. The department's Ecological Studies Section uses aerial photography and general aerial surveys for investigating proposed pipelines, airport expansion, sewerage development, surface mining, and other projects. Without the use of airplanes, it would be impossible to get the complete picture of how such projects adversely affect wildlife habitat. Upon department recommendations from such aerial surveys, many potentially detrimental projects are stopped or revised.

The Seafood Division uses airplanes to check drilling locations before permits are issued and the Louisiana Offshore Oil Port section makes regular aerial checks of the pipeline. The use of planes in these projects is critical to protecting our environment.

Airplanes are also important for carrying equipment and personnel to difficult-to-reach places. A biologist, for instance, can reach the distant Chandeleur Islands to monitor brown pelicans in a matter of minutes instead of an hours-long boat ride. Pelican nests can also be inventoried by aerial photography which makes it possible to count nests without disturbing the birds. Through the use of planes, the department keeps a close check on our state bird, now an endangered species that is being re-established through restocking efforts.

The department's aircraft are also available for use during emergencies or times of natural disaster. In such instances, our pilots' familiarity with Louisiana terrain is invaluable.

These are just some of the many uses of aircraft in game and fish management. Much of the success of Department of Wildlife and Fisheries programs can be directly traced to the use of aircraft and to the men who fly for wildlife. Leo Rodriguez, Gerald Daigle, and Steve Littleton have excellent credentials with a combined total of nearly sixty years flying experience, many of these years with the department.

Littleton, the newest department pilot, has accumulated a lifetime of 20,000 hours flying time. Daigle, wildlife pilot for seven years, has almost twenty-five years flying experience, much of it with the military. He has been a flight instructor for ten years. Rodriguez, department veteran pilot of seventeen years, is vice president of the International Association of Natural Resource Pilots. This professional organization keeps members abreast of the latest developments in aerial/wildlife management techniques and equipment.

The expertise and dedication of all three pilots are reflected in their outstanding records. Often they are called

upon to fly under trying circumstances, in hazardous weather or for long hours, particularly in waterfowl surveys and enforcement patrol. In addition to three full time pilots, the department has several biologists and administrators who have their pilot's licenses and use aircraft in their own work.

The success of the department's early and modern day management programs can definitely be linked to these men who fly for wildlife.



Chuck Smith (*left*), waterfowl biologist, and Gerald Daigle, department pilot, regularly conduct aerial waterfowl inventory during fall migrations (*top left*). These duck surveys are invaluable in providing data to help manage waterfowl and set hunting seasons.

Conservationnotes



Fish Records

Most salt water anglers are very much aware of the International Game Fish Association (IGFA) records-keeping program begun in 1939. Now, fresh water fishermen can qualify for world records too through the same organization. The new fresh water records were set up in January 1980. Copies of rules and application forms are available free from IGFA, 3000 East Los Olas Blvd., Fort Lauderdale, Florida 33316.

The 1982 official Louisiana fish records for fresh and salt water are also available for distribution. Published by the Louisiana Outdoor Writers Association with the Menhaden Advisory Council of the Gulf of Mexico, the fish records brochure can be obtained from outdoor writers around the state, Louisiana Department of Wildlife and Fisheries offices in Minden, Monroe, Alexandria, Ferriday, Lake Charles, Opelousas, Baton Rouge and New Orleans. Sporting goods stores, fishing supply houses, and individuals can obtain copies in bulk by contacting the Information and Education Division, P.O. Box 14526, Baton Rouge, LA 70898.

Official applications for Louisiana record fish can also be obtained from this address. Remember, to ensure proper handling of potentially record fish, fill in the application correctly: include species, weight, length, girth, where caught, type of tackle used, date, bait used, and location and type of scales

used for weighing fish. Fish must be weighed on state inspected scales such as those in markets or stores or at major boat docks. A clear full-length side photograph of the fish must be submitted. Each application must be signed by the fisherman and two witnesses who certify that the weight indicated is correct.

Louisiana Nature Center Exhibit

"Mississippi River Delta: A Fragile Treasure," a major new exhibit opened March 27 at the Louisiana Nature Center in New Orleans to mark its second year of operation. The exhibit, first of its kind in the city, portrays how the Mississippi Delta was formed over the centuries; alligators, egrets, cypress, and many other plants and animals that inhabit the Delta; and the economic and cultural importance of the Delta to its human inhabitants.

Major portions of "Mississippi River Delta" will remain on display for two to three years. However, like the Nature Center's Discovery Loft, this exhibit will include many small exhibits and learning resources, each of which can be periodically changed to provide new, up-to-date information and ideas.

The 86-acre nature center is located in Joe W. Brown National Park in Eastern New Orleans and features a nature trail plus indoor exhibits on subjects ranging from the blue crab to animal architecture to a hands-on discovery loft with living creatures.

Wildlife Vacations

A recent release from the National Wildlife Federation announces seventeen outdoor vacations put together by the federation. These back-to-nature vacations are designed for all ages, children, teenagers, and adults. They combine outdoor experiences with conservation education and exploration and a chance to see some of North America's most scenic vacation spots.

The family vacation/workshops will be held in the Blue Ridge Mountains in North Carolina, June 26—July 2; the Rocky Mountains of Colorado, July 4—10; the Adirondack Mountains of upstate New York, August 1—7; the shores of Green Lake in Wisconsin, August 7—13, and the Canadian Rockies in

Banff, Alberta, June 9—15.

Participants can register for workshops on birds and wildlife, wildflowers, map reading, geology, or fly casting and other subjects. Teachers and college students can arrange to receive college credit for these workshops.

For further information about NWF's vacation programs, write the National Wildlife Federation, Dept. PR 82, 1412 16th St. NW, Washington, D.C. 20036 or call 703/790-4363.

Local courses in wildlife and outdoor activities are also available in state through the Department of Wildlife and Fisheries education program. Several workshops have been scheduled for the summer at many universities and summer camps. Programs are available for youngsters as well as adults with college credit available for teachers.

For more information on Louisiana outdoor workshops, contact the department's Education Section, P.O. Box 50426, Baton Rouge, LA 70898, or call 504/342-5861.

Shark Tagging

In recent years many people have shown interest in developing a commercial fishery for sharks, not only in Louisiana, but also on the Atlantic and Pacific coasts, reports the Louisiana Cooperative Extension newsletter "Lagniappe." However, very little is known about shark biology as there has not been a traditional commercial fishery for sharks.

Three researchers with National Marine Fisheries Service from the Northeast Fisheries Center in Rhode Island have now released the results of their work in tagging sharks during 1980. A total of 5,236 sharks from 34 different species were tagged and released and 146 tagged sharks from 14 species were later recaptured.

The newsletter points out several interesting tidbits from the report. One tag recovered from a sandbar shark had been attached over 15 years. What was most interesting was how far some of the sharks had moved since they were tagged. One blue shark moved across the Atlantic 3,630 miles in nine months. Another blue shark moved 3,150 miles in sixteen months. Several sandbar sharks moved 1000 to 1500 miles and one dusky shark travelled 1464 miles.



Louisiana Big Game Records

Now that summer's here and Louisiana big game hunters are in their "off-season," they're dreaming of the trophy buck, big tom turkey, or perhaps even the bear they hope to bag next season. Just so they'll know how high to set their goals, here are some of the official Louisiana Big Game Records compiled by the Department of Wildlife and Fisheries and Louisiana Outdoor Writers Association.

The Boone and Crockett method (previously, North American Big Game Records) is used for measuring deer and bear. Deer are scored based on antler measurements and bear are scored on skull measurements. The Louisiana Department of Wildlife and Fisheries has devised its own system for measuring turkey, based on the length and width of spurs.

To be included in the Louisiana Big Game Records, animals have to be killed in fair chase; use of airplanes, helicopters, other vehicles, or drugs is prohibited.

Louisiana has ten official Boone and Crockett measurers, at least one in each of the eight Wildlife and Fisheries district offices around the state. All Louisiana big game hunters are encouraged to contact one of these officials to report potential record animals. There are many trophy animals that have not been measured that are hanging on walls around the state. It's not too late to have these measured for inclusion in the Louisiana Big Game Records.

So, if there's an unmeasured trophy on your wall, or if you bag a possible record deer, turkey, or bear next year, contact one of these officials: Bob Kimble—P.O. Box 915, Minden, 71055, (318) 377-3575; Jerry Farrar—P.O. Box 4004, Monroe, 71203, (318) 343-4044; Jerald Owens—P.O. Box 278, Tioga, 71477, (318) 487-5885; Reggie Wycoff—P.O. Box 426, Ferriday, 71334, (318) 757-4571; John Robinette—1213 North Lakeshore Dr., Lake Charles, 70601, (318) 491-2575; Kerney Sonnier—P.O. Box 585, Opelousas, 70570, (318) 942-7553; Dave Moreland, Dan Dennett, or Joe Herring—P.O. Box 14526, Baton Rouge, 70898, (504) 342-5875; Dave John—400 Royal Street, New Orleans, 70130, (504) 568-5612.

White-tailed Deer

Score	Length of Main Beam	Inside Spread	Points	Killed by	Parish killed	Date
Typical antlers, top three:						
180%	28 $\frac{1}{8}$ "	18 $\frac{1}{8}$ "	13	Shawn Ortego	St. Landry	1975
176 $\frac{2}{8}$	29 $\frac{4}{8}$ "	20 $\frac{6}{8}$ "	10	Willard Roberson	Richland	1968
170%	24 $\frac{1}{8}$ "	16 $\frac{1}{8}$ "	13	Johnnie Kovac, Jr.	Morehouse	1979
Nontypical antlers, top three:						
218 $\frac{4}{8}$	26 $\frac{1}{8}$ "	17 $\frac{2}{8}$ "	16	Drew Ware	St. Martin	1941
206 $\frac{1}{8}$	30 $\frac{1}{8}$ "	23 $\frac{4}{8}$ "	21	J.H. Thurmon	Claiborne	1970
206 $\frac{6}{8}$	26 $\frac{4}{8}$ "	17 $\frac{2}{8}$ "	18	Richard Ellison	Grant	1969
Typical antlers, Archery:						
102	17 $\frac{1}{8}$ "	13 $\frac{1}{8}$ "	10	Gene Booth	Allen (West Bay WMA)	1980

Eastern Wild Turkey

Score	Avg. length of spurs (mm)	Avg. width of spurs (mm)	Killed by	Location killed	Date
48.5	35.0	13.5	Paul Jackson	West Bay WMA	1978
45.0	31.5	13.5	Frank Lemmings	Allen Parish	
45.0	31.5	13.5	J.M. Woodside, Jr.	Indian Bayou Club	1981
44.5	31.5	13.0	Ray Palermo	St. Landry Parish	
				East Feliciana Parish	1981
				Northwest Grant Parish	1981

Black Bear

Score	Skull Length without lower jaw	Skull width	Killed by	Parish killed	Date
20 $\frac{10}{18}$	13 $\frac{2}{16}$ "	7 $\frac{8}{16}$ "	Neil Smith III	Point Coupee	1978
17 $\frac{8}{18}$	11 $\frac{2}{16}$ "	6 $\frac{8}{16}$ "	Kenneth R. Johnson	Iberville	1980

Hunter Safety Education

Five thousand students of all ages, child, adolescent, and adult, are certified each year in Louisiana as certified safe hunters. In a continuing effort to foster hunter safety, the department would like to train even more hunters in general safety practices. Hunter safety certification may soon be mandatory in Louisiana for certain age hunters just as it already is in over half the states.

Certification is obtained through courses taught by department or trained volunteer instructors. The course involves classroom as well as actual shooting instruction.

These courses can be scheduled year-round through any wildlife and fisheries district office. Now is the time to think about certification in advance of the fall hunting season. These summer courses are excellent for all hunters, novice and experienced, but are especially recommended for youngsters and those adults planning out-of-state hunting trips where certification is mandatory to obtain a license.

Following is a list of scheduled courses.

June 1982

Lake Charles, La.—June 15, 16, & 17—(must attend all three days) 6:30—9:30pm Wildlife & Fisheries building—1213 N. Lakeshore Dr.

July 1982

Baton Rouge, La.—July 5, 6, & 7—(must attend all three days) 5:30—7:30pm Shooting will be on July 10. Wildlife & Fisheries building on Quail Dr. off Perkins Rd.

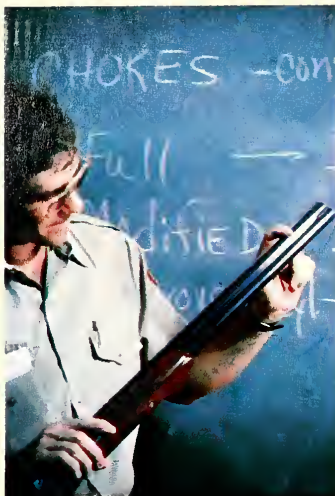
Amite, La.—July 22, 23, & 24—(must attend all three days) 7:30—9:30pm on Thursday and Friday. 9:00am—Noon on Saturday. For location call 504/342-5867.

Hahnville, La.—July 8, 9, & 10—(must attend all three days) 6:00—9:00pm St. Charles Parish Courthouse.

Opelousas, La.—July 10 (one day only) 9:am—5pm—Wildlife & Fisheries building on Hwy 182.

Alexandria, La.—July 13, & 14 (must attend both days) begins at 6:00pm each night. Wildlife & Fisheries building—Hwy 71 North (next to Springhill Courts).

Benton, La.—July 16 & 17 (must attend both days) 6:00pm—9:00pm on Friday 9:00am—3:00pm on Saturday. Bossier Parish Sheriff's Office. MINIMUM OF 8 STUDENTS.



Hunter safety courses include both classroom instruction and actual rifle or shotgun shooting.

August 1982

Baton Rouge, La.—August 2, 3, & 4 (must attend all three days) 5:30—7:30pm Shooting on August 7. Wildlife & Fisheries building on Quail Dr. off Perkins Rd.

Covington, La.—August 4, 5, 6, & 7 (must attend all four days) 6:00—8:00pm on Wednesday through Friday—8:00am—Noon on Saturday. Covington High School Agriculture Dept. MAXIMUM OF 20 STUDENTS PER CLASS.

Ferriday, La.—August 7 (one day only)—9:00am—3:00pm. Wildlife & Fisheries building on Hwy 568.

Chalmette, La.—August 10, 12, & 14 (must attend all three days) 6:00—9:00pm St. Bernard Parish Courthouse.

Caryless, La.—August 14 (one day only) 9:00am—5:00pm—Caryless Lions Club.

Opelousas, La.—August 14 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building on Hwy 182.

Alexandria, La.—August 17 & 18 (must attend both nights) Begins at 6:00 pm. Wildlife & Fisheries building on Hwy 71 North (next to Springhill Courts).

New Iberia, La.—July 22, 23 & 24 (must attend all three days) 6:00—9:00pm Community Center at City Park.

Shreveport, La.—July 22, 23 & 24 (must attend all three days) 6:30—9:30pm on Thursday & Friday. 9:00am—Noon on Saturday. Caddo Sheriff's Academy.

Opelousas, La.—July 24 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building on Hwy 182.

Lake Charles, La.—July 6, 7, & 8 (must attend all three days) 6:30—9:30pm Wildlife & Fisheries Building—1213 N. Lakeshore Dr.

Beauregard Parish—July 24 (one day only) 9:am—5pm. For time and place call 318/491-2585.

Ferriday, La.—July 1, 2, & 3 (must attend all three days) 6:00—9:00pm Wildlife & Fisheries building on Hwy 568.

Ferriday, La.—July 31 (one day only) 9:00am—3:00pm—Wildlife & Fisheries building on Hwy 568.

Fort Polk will hold one program in July, for more information call 318/535-5715 or 318/487-5886.

Benton, La.—August 20 & 21 (must attend both days) 6:00pm—9:00pm on Friday, 9:00am—3:00pm on Saturday—Bossier Parish Sheriff Office—MINIMUM OF 8 STUDENTS PER CLASS.

Port Sulphur, La.—August 23, 25, & 28 (must attend all three days) 6:00pm—9:00pm Port Sulphur Civic Center.

Ferriday, La.—August 23 & 24 (must attend both nights) 6:00—9:00pm Wildlife & Fisheries building on Hwy 568.

Shreveport, La.—August 16, 17, & 18 (must attend all three days) 6:30—9:30pm Thursday & Friday—9:00—Noon Saturday—Caddo Sheriff's Academy.

Opelousas, La.—August 28 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building on Hwy 182.

Lake Charles, La.—August 24, 25, & 26 (must attend all three days) 6:30—9:30pm Wildlife & Fisheries building—1213 N. Lakeshore Drive.

Fort Polk WILL HOLD ONE CLASS PER WEEK - For information call 318/535-5715 or 318/487-5886.

September 1982

Opelousas, La.—Sept. 4 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building on Hwy 182.

Morgan City, La.—Sept. 1, 8 & 11 (must attend all three days) 6:00—9:00pm Morgan City Trade School.

Baton Rouge, La.—Sept. 6, 7, & 8 (must attend all three days) 5:30—7:30pm shooting on Sept. 11—Wildlife & Fisheries building on Quail Dr. off Perkins Rd.

Houma, La.—Sept. 9, 10, & 11 (must attend all three days) 6:00—9:00pm on Thursday and Friday—9:00am—Noon on Saturday—Terrebonne Parish Sheriff's Range.

Alexandria, La.—Sept. 14 & 15 (must attend both days) Begins at 6:00 each evening—Wildlife & Fisheries building—Hwy 71 North (next to Springhill Courts).

Shreveport, La.—Sept. 16, 17, & 18 (must attend all three days) 6:30—9:30pm Thursday and Friday—9:00—Noon on Saturday—Caddo Sheriff's Academy

Tallulah, La.—Sept. 13, & 14 (must attend both days) 6:00—9:00pm. For location call 318/757-4571.

Lake Charles, La.—Sept. 18 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building—1213 N. Lakeshore Drive.

Baker, La.—Sept. 18 (one day only) 8:00am—5:00pm. For location call 504/342-5867.

Benton, La.—Sept. 24 & 25 (must attend both days) 6:00—9:00pm on Friday 9:00am—3:00pm on Saturday. Bossier Parish Sheriff's Office. MINIMUM OF 8 STUDENTS PER CLASS.

Ferriday, La.—Sept. 25 (one day only) 9:00am—3:00pm—Wildlife & Fisheries building on Hwy 568.

Opelousas, La.—Sept. 18 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building on Hwy 182.

Fort Polk WILL OFFER ONE PROGRAM PER WEEK—For time and place please call 318/535-5715 or 318/487-5886.

October 1982

Opelousas, La.—October 2 (one day only) 9:00am—5:00pm—Wildlife & Fisheries building on Hwy 182.

Winnsboro, La.—October 4 & 5 (must attend both days) 6:00—9:00pm. For location of course please call 318/757-4571.

Minden, La.—October 7, 8, & 9 (must attend all three days) 6:00—9:00pm on Thursday & Friday—9:00am—Noon on Saturday—Wildlife & Fisheries building, 806 Talton St.

Baton Rouge, La.—October 11, 12, & 13 (must attend all three days) 6:30—9:30pm on Monday & Tuesday. Time for class on Wednesday will be announced on Monday the 11th. Wildlife & Fisheries building on Quail Dr. off Perkins Rd.

Alexandria, La.—October 19 & 20 (must attend both nights) begins at 6:00pm each night. Wildlife & Fisheries building on Hwy 71 North (next to Springhill Courts).

Ferriday, La.—October 2 (one day only) 9:00am—3:00pm. Wildlife & Fisheries building on Hwy 568.

New Orleans, La.—October 4, 5 & 6 (must attend all three nights) 6:00—9:00pm Jackson Barracks, Armory #1.

Fort Polk WILL OFFER ONE COURSE PER WEEK. For time and place please call 318/535-5715 or 318/487-5886.

We request that all students pre-register with the Hunter Safety office in Baton Rouge for all courses except those held at Fort Polk. Students may also register at the Wildlife & Fisheries office nearest to them.

Hunter Safety Office—504/342-5867

Minden Office—318/226-7594

Alexandria Office—318/487-5886

Ferriday Office—318/757-4571

Lake Charles Office—318/491-2585

Opelousas Office—318/942-7553

All persons in the New Orleans area should register through the main Hunter Safety Office only.

POACHING IS A CRIME Report Game Law Violators 1-800-442-2511 Toll Free

Louisiana Conservationist

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"WE GET LETTERS..."

On Hunting & Fishing License Fees

This letter is in reply to A Concerned Hunter from Pearl River in the November/December issue. This person objects to the nominal fee charged by sporting goods and bait shops for the service they provide by handling hunting licenses.

Many hunters, and fishermen, too, are unaware of the headaches involved for the small businessman in providing this voluntary service. Just keeping fishing, hunting, and big game licenses often ties up \$500 of his capital as these licenses must be paid for by him when picked up at the Sheriff's Office. Additionally, he must arrange to pick up the licenses during his business hours because the Sheriff's Department doesn't sell them after 5:00 p.m. To this inconvenience, add his time and gas expense involved. Also, Sheriff's Offices and Wildlife and Fisheries Department are closed on weekends...

The service provided by these sporting and bait shops far surpasses the 25¢ or 50¢ fee charged by most of them. My suggestion to A Concerned Hunter is that he drive the 25 miles or so round trip to the nearest Sheriff's Department (between 8:00 a.m. and 5:00 p.m., Monday-Friday) to purchase his license (free?).

As for my family, we'll purchase ours at our friendly, neighborhood bait shop on week-ends or hours before 8:00 a.m. any day.

The Other Side
Pearl River, LA

A bill in the current session of the Louisiana Legislature provides for a service fee to nonpublic distributors of licenses.

—Editor

Crawfish: From Pond to Pot

As a long-time mudbug fancier, let me say how much I enjoyed your crawfish story in the March-April Conservationist.

One thing you may wish to tuck away in your mind or notes is that the people of Sweden have and greatly enjoy their own crawfish. Despite my own surprise, I never did pursue my curiosity as to where they are grown or caught in their natural environs.

Frank Eshleman
New Orleans, LA

People in other parts of the world do indeed enjoy crawfish. The species in Sweden is a different variety from our own Red Swamp and White River crawfish. "The Noble Crayfish," English translation for the Swedish name, is a cool water species that lives in permanent lakes and rivers (as opposed to fluctuating swamps and flooded riverbottom areas). Just as in Louisiana, it is harvested commercially and for sport and is the reason for numerous festivals. However, there is another main difference: in Sweden, one crawfish may sell for \$3 on the plate. Difference in prices is partially attributed to the longer growing time necessary because of cooler environmental temperature.

Thank you for your interest.

—Editor

I enjoy every issue of your fine publication and especially enjoyed the article in the March-April issue entitled *Crawfish: From Pond to Pot*.

On page 7, I would like to point out that melt is beef spleen and not beef pancreas.

Please keep up your excellent work.

Ronald Waguespack, M.D.
Vacherie, LA

Pardon our error. Beef melt is indeed spleen. However, beef pancreas and liver can also make excellent crawfish bait.

—Editor

Tensas Tract

While I enjoyed the program and the spokesman for the Conservation Group was a good representative, we would really benefit greatly if sub-titles could be used. For example—1. His name and how he can be contacted. 2. The name and address to write for the Secretary of the Interior. 3. How we might become involved on an individual basis to make our voices heard in the preservation of such an important area to our conservation efforts.

W.A. McBride, Jr. M.D., F.A.P.A.
Shreveport, LA

Thank you for your interest in the Tensas Tract and the preservation of this large bottomland area (see Louisiana Conservationist, March/April 1982, p. 23).

For more information on how to become involved on an individual basis, contact Richard K. Yancey, Chairman, Tensas Conservancy Coalition, 1337 Lee Drive, Baton Rouge, LA 70808, or M. A. Skipper Dickson, co-chairman, P.O. Box 1367, Shreveport, LA 71164. U.S. Secretary of the Interior is James Watt, Interior Bldg., C. St. between 18th and 19th, Washington, D.C. 20240.

The Tensas Conservancy Coalition urges you to make your voice heard on this issue by writing letters of concern to the Department of the Interior, the United States Congress, and your state legislators.

—Editor

Whale Rescue

On my behalf, and many other wildlife enthusiasts, I would like to thank and commend the Wildlife and Fisheries Department on their gallant effort to save the Finback whale that beached itself on a sand bar at the mouth of the Mississippi River last month.

As soon as the authorities were notified on the situation they sent an agent to take care of the predicament, and without worry of their own safety, they dug the whale out of the sand and set it free. But, despite their great efforts and succeeding at freeing the whale, it later beached itself again and died.

Michael G. Roussel
New Orleans, LA

The whale you are referring to is a species not normally seen in the area where it beached itself off Southwest Pass in late February. Marine biologist Mark Chatry, Captain Buddy Seals of the Enforcement Division, and pilot Steve Littleton are the department employees instrumental in the whale's rescue. Working with National Marine Fisheries in a Shell Oil crewboat, they were able to use a rope sling to tow the whale into the Gulf. Unfortunately, the whale again beached itself three days later and died. Ron Dugas, head of the department's Grand Terre Marine Laboratory, says that when a whale beaches itself, it is usually sick.

Because of the unusual nature of the event, the whale incident was of media interest in south Louisiana. Thanks for recognizing the department's efforts in the rescue and for sharing your thoughts with Louisiana Conservationist readers.

—Editor

Offshore Oil Port

The November/December issue arrived!! I'm always in fear that there will not be another one!!

Fascinated especially by the article on Louisiana's offshore oil port; but then any article is interesting.

Harold M. Carr
Charlotte, Vermont



Lloyd Foxsenot

Pie's Potpourri

By Marian
"Pie" Pendley

Oriental Skewered Shrimp

¼ cup medium dry sherry
¼ cup soy sauce
1 tsp. sugar
½ tsp. ground ginger
36 raw medium-size shrimp, shelled
wooden or bamboo skewers, about 9
inches long
cherry tomatoes
yellow pickled peppers

Combine sherry, soy sauce, sugar and ginger in a small saucepan. Heat just to boiling; remove from heat; cool to room temperature.

Wash shrimp. Thread 3 shrimp lengthwise, through the center, heads doubled up against the tails, on each skewer. Thread a cherry tomato or yellow pickled pepper at end of each skewer. Place on a platter and brush with sauce on all sides. Refrigerate for 1 hour.

Grill over medium coals for 6-10 minutes, turning once and brushing frequently with the sauce, until nicely glazed. Serve piping hot.

Can be prepared ahead of time, kept cool and cooked on a hibachi.

Stuffed Artichokes

6 large artichokes
6 cloves garlic, minced
1 large can seasoned Italian bread crumbs
2 cups grated Romano cheese
olive oil
juice of two lemons

Prepare each artichoke for stuffing by holding it by its stalk and pounding it, leaves down, on a drainboard until the leaves open. Wash well. Cut off bottom stem flat so that the artichoke will remain standing. With scissors trim tip of leaves approximately ½ inch. Soak in cold water.

Mix minced garlic, bread crumbs, grated cheese and lemon juice. A little olive oil may be added to hold mixture together lightly.

Starting at the bottom row, open each leaf with one hand and fill with the other. Draw the leaves as tightly together as you can. Stand the artichokes in a pot deep enough and wedged together so they will not topple over. Drizzle a little olive oil over each artichoke. Add enough water to come about one-quarter of the way up on the artichokes, cover pot, and allow them

to steam until done. Cooking time will vary depending on size and toughness of artichoke. Check after they have steamed approximately 30 minutes. If leaf pulls out easily, they are done.

Sesame Chicken

1 cup finely crushed saltine crackers
1/3 cup sesame seed, toasted
1 tsp. paprika
½ tsp. salt
20 chicken drumsticks
1/3 cup evaporated milk
¾ cup margarine, melted

Combine first four ingredients. Dip chicken in milk; roll in crumbs. Pour margarine into large baking dish. Place chicken in pan; turn once. Bake at 375° for 1 hour; remove from pan. Cool.

Wonderful Cheese Bread

1½ cups warm water
2 packages active dry, or 1 cake, yeast
2 tbsps. granulated sugar
2¼ tps. salt
6¾-6½ cups sifted regular all-purpose flour
2 eggs, beaten with fork
2 cups grated processed sharp cheese
¼ cup caraway seeds
melted butter or margarine

Early in morning: 1. In large bowl, onto warm water, sprinkle yeast; stir in sugar and salt until dissolved. Add 2 cups flour; beat well with spoon. Add slightly beaten eggs, cheese and caraway seeds and beat well. Beat in 4 more cups flour to make a soft dough, using hands if necessary.

2. Turn dough onto lightly floured surface; cover with inverted bowl; let rest 10 minutes. Now, with heels of hands knead remaining flour, a small amount at a time, to produce a smooth elastic dough with small blisters under its surface.

3. Place dough in large greased bowl, turning it to grease all sides. Cover with clean towel; let rise in warm place (80°F to 85°F) until doubled in bulk—about 1½ hours.

4. Now punch down dough by gently pressing fist into center; let rise again until almost doubled. Punch down; turn out onto light floured surface. Cover with inverted bowl; let rest 10 minutes.

5. With sharp knife, divide dough into four equal parts. With palms of hands, roll each part into a roll 12 inches long. Twist two rolls together like a rope so they are entwined; seal ends carefully. Lay in greased 9x5x3 inch loaf pan against one side. Repeat with other two rolls; lay in second greased loaf pan. Cover rolls with towel; let rise until almost doubled—30 to 45 minutes.

6. When loaves have doubled in bulk, brush tops with melted butter. Bake in 350° preheated oven 35 minutes, or until done.

